Attachment A

Boston Pacific Company

Bid Evaluation Methods in Competitive Solicitations

Bid Evaluation Methods in Competitive Solicitations:
A White Paper on Techniques Used to Evaluate Power Supply Proposals with Unequal Lives

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I. INTRODUCTION AND SUMMARY

For at least twenty years, utilities across the country have been issuing competitive solicitations to invite power sales proposals from affiliates and non-affiliates.[1] As the number of non-affiliated suppliers has increased, state and federal regulators have encouraged utilities to use such solicitations for an increasing portion of their capacity, energy and ancillary services needs. First and foremost, the goal of competitive solicitations is to evaluate a full range of resources in the wholesale marketplace to obtain the best possible deal for electric utility customers in terms of price, risk, reliability, and environmental performance.

In 2004, Boston Pacific prepared "Getting the Best Deal for Electric Utility Customers: *A Concise Guidebook for the Design, Implementation and Monitoring of Competitive Power Supply Solicitations*."[2] The Guidebook discussed (a) the importance of and role for competitive solicitations, (b) ways to ensure a credible process, (c) choosing solicitation formats and product types, and (d) how to conduct a fair and accurate bid evaluation. The purpose of this White Paper is to expand the discussion of one narrow, but important aspect of the bid evaluation process. Specifically, how should evaluators compare proposals of unequal lives? For example, how should evaluators accurately compare a proposal that has a 5-year term to another proposal that has a 10-year term?

This White Paper describes and quantifies five evaluation techniques for comparing proposals of unequal lives: (a) the Equivalent Annual Annuity Method, (b) Real Levelized Revenue Requirement Method, (c) Filler Method, (d) Deferred Replacement Cost Method, and (e) Option Method.[3] Our research indicates that, out of these five methods, the Equivalent Annual Annuity Method (the Annuity Method) should be among the methods required in an evaluation, if not the preferred method. The central appeal of the Annuity Method is that it essentially allows the bid to speak for itself, thereby minimizing the discretion of the bid evaluator. The other methods add needless complexity and uncertainty to the bid evaluation process, and all give too much discretion to the bid evaluator.

II. EQUIVALENT ANNUAL COST METHOD (ANNUITY METHOD)

According to standard financial theory, the Equivalent Annual Cost Method, or simply the Annuity Method, should be used to compare alternatives that have unequal lives.[4] If a business must choose between Alternative A, which lasts 10 years, and

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[1] One of the first such solicitations was used by Central Maine Power in 1984. More recent examples include competitive solicitations issued by utilities in Arizona, Colorado, Maryland, New Jersey, and Florida.

[2] Available at www.bostonpacific.com

[3] All assumptions and exhibits used in this White Paper are purely hypothetical and are only used to clarify the evaluation techniques.

[4] *See* Ross, Stephen A., Westerfield, Randolph W., and Jaffe, Jeffrey. Corporate Finance Fourth Edition Irwin. (1996) p. 185.

Alternative B, which lasts 20 years, the business should compare the annuity costs of the two alternatives. An annuity is the equal annual payment over the life of the alternative that has the same present value as the actual, unequal annual costs that are expected to be incurred. The annuity of Alternative A would be calculated over ten years and that of Alternative B would be calculated over twenty years. The alternative with the lower annuity is the better choice.

Central to all methods of comparing alternatives of unequal lives is the assumption about what happens when the shorter-term choice expires. In the above example, what happens when Alternative A, the 10-year offer ends its initial term? With the Annuity Method, it is implicitly presumed that the initial offer is repeated. This means that the gap between the 10 and 20-year choices, in effect, would be filled in by assuming that the 10-year alternative would be offered again at the same price and non-price terms. The primary benefit of this technique is that it allows bids to speak for themselves and takes discretion out of the evaluator's hands.

There are three main steps involved in applying the Annuity Method to bid evaluation. First, for each bid, the evaluator takes the present value of the total cost of the proposal. Second, an annuity is calculated based on that present value. Again, an annuity is the equal annual payment that yields the same present value as calculated in step one. Third, if the proposals are of different megawatt sizes then the evaluator should adjust the annuity by dividing the annuity by the contract capacity (Annuity/MW). The evaluator can then compare a 10-year annuity to a 20-year annuity and choose the alternative with the lower annuity cost. Exhibit One provides a hypothetical quantitative example of the Annuity Method.

In Exhibit One, Proposal A, a 10-year offer, is compared to Proposal B, a 20-year offer, with the following contract assumptions for a combined cycle natural gas-fired generating facility:

TABLE ONE:
CONTRACT ASSUMPTIONS FOR EXHIBIT ONE

	Proposal A	**Proposal B**
Term Length	10 years	20 years
Heat Rate	6,500 Btu/kWh	7,200 Btu/kWh
Inflation	2.5%	2.5%
Capacity	500 MW	450 MW
After-Tax Cost of Capital	9.50%	9.50%
Fixed Price Fuel Contract	$3.50/MMBtu	$3.50/MMBtu
Capacity Factor	70%	70%
Variable O&M	$1.50/MWh	$1.75/MWh
Capacity Payment	$95/kW-yr	$75/kW-yr

The results of our analysis are shown in Table Two below and illustrate the need for a method to compare the proposals on an apples-to-apples basis. Simply comparing the present value for two proposals could convey misleading results. For example, only comparing the present values would lead one to choose Proposal A ($794.9 million) over Proposal B ($1 billion). Generally, the shorter-term contract would offer a lower present value because there are fewer years of costs; therefore the appropriate next step is to compare the annuities of the proposals. In this example, Proposal A's annuity is $126.6 million and Proposal B's annuity is $114.5 million. This would lead the evaluator to choose Proposal B, as it has the lower cost annuity. Unfortunately, this comparison is still inaccurate.

Comparing the annuities is insufficient because Proposal A is offering 50 more megawatts than Proposal B. The proper method to compare proposals with unequal lives and different capacity sizes is to compare them on an annuity per MW basis. In this illustration, Proposal A wins over Proposal B because its annuity per MW is cheaper ($253,200/MW compared to $254,400/MW).

TABLE TWO:
RESULTS OF EXHIBIT ONE

Results	PV ($000)	Annuity ($000)	Annuity/MW ($000/MW)
Proposal A	$794,899	$126,601	$253.20/MW
Proposal B	$1,008,845	$114,480	$254.40/MW

It should be noted that this example only tested one capacity factor. We recommend that the evaluator test a range of capacity factors and generate a screening curve to analyze how the contracts perform at different levels.[5]

As with any method, the Annuity Method has its possible faults. As previously mentioned, under the Annuity Method, it is presumed that beyond its initial term an offer is extended under the same terms and conditions as its initial term. If a solicitation takes place under severely depressed market conditions, but with the expectation that these conditions will improve in the long term, then the evaluation should request proposals of sufficient length to bridge the gap between the depressed and improved market conditions. Moreover, what if in Exhibit One, Proposal B (450 MW) was actually the lower-cost proposal? The Annuity Method does not have an easy answer regarding how the utility should solicit the remaining 50 MW. Presumably, the practical response is for the soliciting utility to conduct negotiations with Proposal A on those 50 MW.

[5] Using various capacity factors to generate a screening curve is vital to determining which proposal is the best alternative. However, in determining which supplier is the cheaper alternative, the evaluator must use the same capacity factor for each proposal.

III. REAL LEVELIZED REVENUE REQUIREMENTS METHOD

The Real Levelized Revenue Requirements Method is another method of comparing proposals of unequal lives. It is derived from quantitative methods used to evaluate the revenue needed to support the capital costs of building a new generation facility. That is, the cost of constructing and financing spread over the life of a new generation facility, which generally includes the return *of* investment (book depreciation), the return on investment (both equity and debt), and taxes.

There are five main steps involved in applying this approach. First, for each bid, the evaluator calculates the present value of the annual total cost using a nominal discount rate. Second, a real annuity is calculated based on the present value calculated in step one. That is, using a "real" discount rate (i.e., discount rate without inflation), the evaluator calculates the annuity payment (equal annual payment) that yields the same present value as calculated in step one. Third, inflation is factored back in by escalating the real annuity each year by the compounded rate of inflation. The present value of this "inflation-adjusted annuity" *using the nominal discount rate* will equal the present value of the proposal as calculated in step one. Fourth, the evaluator levelizes the MW in the same manner as the bid prices. Fifth, levelized annuity cost is divided by the levelized MW. Thus, to compare proposals of different contract lives and resource sizes, the evaluator would compare the levelized annuity per MW ($/MW) of one proposal to another.

Exhibit Two provides a hypothetical, quantitative example of the Real Levelized Revenue Requirement method. It compares Proposal A, a 10-year 750 MW offer to Proposal B, a 5-year 650 MW offer. The example assumes that the evaluator calculates the annual nominal cost of the capacity and energy prices, etc., listed in each bid ("Total Bid Price Costs" column). For Proposal A, it is assumed the bid prices result in a nominal cost of $95 million in year 1 and decrease by $6 million per year thereafter. For Proposal B, it is assumed the bid prices result in a nominal cost of $85.2 million in year 1 and decrease by $8 million per year thereafter. Table Three, below, describes some of the other assumptions used in the exhibit.[6]

TABLE THREE:
ASSUMPTIONS FOR EXHIBIT TWO

	Proposal A	**Proposal B**
Term Length	10 years	5 years
Discount Rate	10.0%	10.0%
Inflation Rate	2.0%	2.0%
Capacity	750 MW	650 MW
Real Discount Rate	7.84%	7.84%
Year 1 Nominal Costs	$95,000,000	$85,200,000

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[6] The real discount rate is calculated by the following formula: real discount rate = [(1+discount rate)/(1+inflation rate)]-1. *See* Brealey, Richard A. and Myers, Stewart C. Principles of Corporate Finance Fourth Edition McGraw-Hill, Inc. (1991) p. 559.

Similar to the Annuity Method, a simple comparison of the present value of the annual nominal costs would produce misleading results. As shown in Exhibit Two, Proposal A has a present value of $446.4 million, while Proposal B results in a present value of $268 million. However, Proposal A has added value that is unaccounted for in this comparison (e.g., providing service in years 6 through 10 and 100 MW more of capacity). To account for these differences, the evaluator levelizes the costs and megawatts associated with each proposal. In year 1, using the real discount rate of 7.84%, the evaluator calculates the real annuity and the levelized megawatts ($66.1 million and 682 MW for Proposal A versus $66.9 million and 615 MW for Proposal B). Next, the evaluator adjusts the real annuity for inflation ("Inflation Adjusted Real Annuity" column). To ensure an apples-to-apples comparison, the same adjustment must be made to the megawatts ("Inflation Adj. Real Annuity MW"). Finally and most importantly, the evaluator divides the Inflation Adjusted Real Annuity by the Inflation Adjusted Real Annuity MW to get a $/MW comparison. Note that this $/MW is the same value in each year. The Table entitled "Proposal A Truncated at 5 Years" demonstrates that even if the evaluator truncates the 10 year bid at 5 years to compare it to Proposal B, the $/MW will remain the same at $96,860/MW.[7]

The concern with the Real Levelized Revenue Requirement Method is that (a) adds unnecessary complexity to the evaluation, which increases the possibility of error and (b) does not properly take into account inflation risk. One way that the evaluators might err is by failing to levelize the megawatts. Failing to adjust the megawatts across all years of the proposal will lead to inaccurate results.[8] In addition, similar to the Annuity Method, this method does not offer an easy solution to fulfilling the remaining megawatts if the lower capacity proposal is the winner. Again, the soliciting utility may choose to negotiate with other suppliers for the remaining balance of the megawatts.

IV. FILLER METHOD

A third technique used is called the Filler Method. In this method, the evaluator will "fill in" behind the shorter term contract with its estimate of future capacity and energy prices until the life of the shorter-term proposal matches the length of the longer-term proposal. To compare Proposal A, a 10-year Purchase Power Agreement (PPA), to Proposal B, a 5-year PPA, the evaluator would assert what capacity and energy prices the supplier in Proposal B would offer in years 6 through 10.

There are three main steps in applying the Filler Method. First, the evaluator determines which bid has the longest term. Second, for each of the shorter-term proposals, the evaluator must estimate the costs that might be incurred when "filling in"

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[7] If performed correctly, the Real Levelized Revenue Requirement Method should produce results similar to the Annuity Method.
[8] It should be noted that if proposals offer staggering capacities throughout its term, (e.g., an increase in year 6 from 750 MW to 800 MW) then this method should accurately account for that increase.

with power purchases each year between the shorter-term and longer-term proposal. As already noted, typically this estimate is made as if the supplier was asked to bid a second time for extra years. Third, the evaluator must compare the present values of bids, which now include the filled-in costs.

This method gives the evaluating entity a significant amount of discretion, which can and often does raise concerns of affiliate abuse or inaccurate comparisons. In short, as compared to the Annuity Method, this Filler Method does not allow the bids to speak for themselves.

Moreover, when assessing future power supply offers, the evaluator must consider (a) improvements to fuel efficiency, (b) development of new technology, and (c) changes in capital costs. For example, ten years ago, a heat rate efficiency of a natural gas-fired generator was in the 8,500-12,000 Btu/kWh range while today new gas-fired generators have heat rates in the 6,000-7,000 Btu/kWh range. Yet, when evaluators utilize the Filler Method, rarely are these technological improvements taken into account, due in part to the difficulty of quantifying and predicting such improvements.

One common assumption made by evaluators during the "filler" years, is the escalation of the capacity price. For example, if the bidder in Proposal B offered a fixed capacity price of $96/kW-yr for each year of the 5-year bid, then the evaluator often assumes the bidder would want to compensate for inflation by increasing its capacity price; that is, the capacity price in year 6 would increase to $108.62/kW-yr ($96/kW-yr times the rate of inflation (2%) compounded over 5 years) and escalate each year by the rate of inflation until year 10. The evaluator is assuming that the bidder (a) did not already factor the rate of inflation into its bid, and (b) would not lower its capacity payment in future years. There are a number of reasons why a lower or equal capacity price could be offered, such as the ability of the supplier to refinance its debt or an excess of supply driving down the return of and on capital. Exhibit Three provides a hypothetical quantitative example of the Filler Method.

Exhibit Three demonstrates how an evaluator would generally extend the term of a shorter-term offer (Proposal A) to match a proposal that has a longer term. In this instance Proposal A has the following contract assumptions:

TABLE FOUR:
ASSUMPTIONS TO EXHIBIT THREE

	Proposal A
Term Length	5 years
Heat Rate	6,500 Btu/kWh
Inflation	2.5%
Capacity	500 MW
After-Tax Cost of Capital	9.50%
Fixed Price Fuel Contract	$5.00/MMBtu
Capacity Factor	70%
Fixed O&M	$4.50/kW-yr
Variable O&M	$1.50/MWh
Capacity Payment	$96/kW-yr

For the first five years of the contract the evaluator takes the bid as is. However after the first five years, the evaluator assumes that the capacity payment increases by 13% in year 6, from $96/kW-yr to $108.62/kW-yr. This is because the evaluator assumes that, in year 6, the effects of inflation (2.5%) compounded over five years have increased the capacity payment from $96/kW-yr to $108.62/kW-yr. Similarly, the evaluator also assumes that fixed operations and maintenance (O&M) costs increase from $4.50/kW-yr in year 5 to $5.09 kW-yr in year 6, but remains fixed for years 7 through 10. Further, with regard to variable costs, the evaluator assumed that the heat rate, variable O&M, and the fixed-price fuel contract remain constant for years 1 through 10.

The primary concern here is that by filling in costs for years 6 through 10 to match the term of a 10-year proposal, the evaluator can significantly bias the 5-year proposal. The filler method gives the evaluator too much discretion, creates uncertainty in the bid process, and thus could undermine the competitive market.

V. DEFERRED REPLACEMENT COST METHOD

A fourth method utilized is the Deferred Replacement Cost Method. This method has often been used to determine if it would be cheaper to self-build generation or to enter into a long-term contract. The presumption is that, for example, if a utility determines that it needs additional capacity and energy, it can either build a combined cycle power plant today with a useful life of 30 years or enter into a 10-year PPA today and build a new facility in year 11.

There are four steps involved in applying the Deferred Replacement Cost Method. First, the evaluator would calculate the present value of the revenue requirement needed to build and finance a new power plant today with an assumed useful life of 30 years. Second, for each bid, the evaluator would calculate the present value of the bid prices (capacity, energy, etc.) for each 10-year offer. Third, a revenue requirement model would calculate the revenue needed to cover the costs of building and financing a new plant in year 11 with a useful life of 30 years ("Year 11 New Plant"). Fourth, the evaluator must estimate the terminal value of the Year 11 New Plant, or the price of selling the Year 11 New Plant after having operated it for twenty years. Fifth, for each bid, the evaluator must compare (a) the present value of the 10-year proposal plus the present value of the revenue requirement of the Year 11 New Plant minus the present value of the terminal value to (b) the present value of building a new plant today.

This method is essentially a variation on the Filler Method and again, it gives the evaluator too much discretion in comparing proposals. The evaluator can err in estimating (a) the decrease or increase in cost of building a new facility in year 11, (b) the increase in fuel efficiency, and (c) the termination payment.

VI. OPTION METHOD

The Option Method is a market-based solution to the unequal lives concern, rather than an analytical method.

A call option is a contract giving the owner the right, but not the obligation to buy an asset at a fixed price on or before a given date. A properly structured RFP could embed a call option into the PPA, which would require the bidder to list the payment (option payment) needed to (a) extend the PPA to a specified date under the same terms and conditions, (b) extend the PPA to a specified date under different terms and conditions, or (c) acquire the generation facility.

For example, assume the RFP is soliciting capacity and energy products for a 10-year term, but wants to compare those 10-year offers to a 20-year offer. In this case, suppliers who are submitting proposals for 10 years should be asked to offer an option payment to extend the contract for another 10 years at the same capacity and energy prices. When evaluating the 10 and 20-year offers, all bids would then have the same term length (i.e., 20 years).

Embedding option payments into the RFP minimizes the evaluator's discretion, but is not without drawbacks. For example, not all suppliers might be willing to enter into the option agreement, especially if they own older facilities that have a useful life of less than 20 years.

VII. CONCLUSIONS

Getting the best deal for utility consumers in terms of price, risk, reliability, and environmental performance should always be the goal of competitive solicitations. To that end, a fair and accurate evaluation of proposals is essential.

Based upon our investigation into the five evaluation techniques (Equivalent Annual Annuity Method, Real Levelized Revenue Requirement Method, Filler Method, Deferred Replacement Cost Method, and Option Method), the Filler Method and the Deferred Replacement Cost Method give too much discretion to the evaluator while the Real Levelized Revenue Requirement Method requires unnecessary complexity. The Option Method is a potential solution to the problem, but raises additional concerns. Thus, it is recommended that at a minimum, the Annuity Method should be required as one way to compare proposals of unequal lives. Most importantly, this method allows the bids to speak for themselves because it minimizes the evaluators' discretion in making assumptions about costs once the initial term expires.

EXHIBIT ONE
COMPARISON OF A 10-YEAR PROPOSAL (PROPOSAL A) TO A
20-YEAR PROPOSAL (PROPOSAL B) USING THE EQUIVALENT ANNUAL COST METHOD (ANNUITY METHOD)

PROPOSAL A

Assumptions

Heat Rate	6,500 Btu/kWh	After-tax CC	9.50%	Term Length	10 yrs
Inflation	2.5%	Fuel Costs	$ 3.50 /MMBtu	Variable O&M	$ 1.50 /MWh
Capacity	500 MW	Capacity Factor	70%	Capacity Payment	$ 95 /kW-yr

Annuity/MW ($000/MW): 253.20

Year	Equip Life	Capacity Payment ($/ kw-yr)	Capacity Costs ($000)	Energy Costs ($000)	Var O&M Costs ($000)	Total Costs ($000)	PV of Total Cost ($000)	Cumulative NPV ($000)	Annuity ($000)
2003		-	$ -	$ -	$ -	$ -	$ -	$ -	
2004	1	95.00	$ 47,500	$ 69,752	$ 4,599	$ 121,851	$ 111,279	$ 111,279	$ 126,601
2005	2	97.38	$ 48,688	$ 69,752	$ 4,599	$ 123,038	$ 102,615	$ 213,894	$ 126,601
2006	3	99.81	$ 49,905	$ 69,752	$ 4,599	$ 124,255	$ 94,639	$ 308,533	$ 126,601
2007	4	102.30	$ 51,152	$ 69,752	$ 4,599	$ 125,503	$ 87,297	$ 395,830	$ 126,601
2008	5	104.86	$ 52,431	$ 69,752	$ 4,599	$ 126,782	$ 80,535	$ 476,365	$ 126,601
2009	6	107.48	$ 53,742	$ 69,752	$ 4,599	$ 128,092	$ 74,309	$ 550,674	$ 126,601
2010	7	110.17	$ 55,085	$ 69,752	$ 4,599	$ 129,436	$ 68,573	$ 619,247	$ 126,601
2011	8	112.93	$ 56,463	$ 69,752	$ 4,599	$ 130,813	$ 63,290	$ 682,538	$ 126,601
2012	9	115.75	$ 57,874	$ 69,752	$ 4,599	$ 132,225	$ 58,423	$ 740,961	$ 126,601
2013	10	118.64	$ 59,321	$ 69,752	$ 4,599	$ 133,671	$ 53,938	$ 794,899	$ 126,601
2014	11	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	12	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	13	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2017	14	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2018	15	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2019	16	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2020	17	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	18	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	19	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	20	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	21	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total			**$ 532,161**	**$ 697,515**	**$ 45,990**	**$ 1,275,666**	**$ 794,899**		

PROPOSAL B

Assumptions

Heat Rate	7,200 Btu/kWh	After-tax CC	9.50%	Term Length	20 yrs
Inflation	2.5%	Fuel Costs	$ 3.50 /MMBtu	Variable O&M	$ 1.75 /MWh
Capacity	450 MW	Capacity Factor	70%	Capacity Payment	$ 75 /kW-yr

Annuity/MW ($000/MW): 254.40

Year	Equip Life	Capacity Payment ($/ kw-yr)	Capacity Costs ($000)	Energy Costs ($000)	Var O&M Costs ($000)	Total Costs ($000)	PV of Total Cost ($000)	Cumulative NPV ($000)	Annuity ($000)
2003		-	$ -	$ -	$ -	$ -	$ -	$ -	
2004	1	75.00	$ 33,750	$ 69,537	$ 4,829	$ 108,116	$ 98,736	$ 98,736	$ 114,480
2005	2	76.88	$ 34,594	$ 69,537	$ 4,829	$ 108,960	$ 90,873	$ 189,609	$ 114,480
2006	3	78.80	$ 35,459	$ 69,537	$ 4,829	$ 109,824	$ 83,648	$ 273,258	$ 114,480
2007	4	80.77	$ 36,345	$ 69,537	$ 4,829	$ 110,711	$ 77,008	$ 350,265	$ 114,480
2008	5	82.79	$ 37,254	$ 69,537	$ 4,829	$ 111,620	$ 70,904	$ 421,169	$ 114,480
2009	6	84.86	$ 38,185	$ 69,537	$ 4,829	$ 112,551	$ 65,293	$ 486,462	$ 114,480
2010	7	86.98	$ 39,140	$ 69,537	$ 4,829	$ 113,505	$ 60,134	$ 546,595	$ 114,480
2011	8	89.15	$ 40,118	$ 69,537	$ 4,829	$ 114,484	$ 55,390	$ 601,985	$ 114,480
2012	9	91.38	$ 41,121	$ 69,537	$ 4,829	$ 115,487	$ 51,028	$ 653,013	$ 114,480
2013	10	93.66	$ 42,149	$ 69,537	$ 4,829	$ 116,515	$ 47,015	$ 700,029	$ 114,480
2014	11	96.01	$ 43,203	$ 69,537	$ 4,829	$ 117,569	$ 43,325	$ 743,353	$ 114,480
2015	12	98.41	$ 44,283	$ 69,537	$ 4,829	$ 118,649	$ 39,929	$ 783,283	$ 114,480
2016	13	100.87	$ 45,390	$ 69,537	$ 4,829	$ 119,756	$ 36,806	$ 820,088	$ 114,480
2017	14	103.39	$ 46,525	$ 69,537	$ 4,829	$ 120,891	$ 33,931	$ 854,019	$ 114,480
2018	15	105.97	$ 47,688	$ 69,537	$ 4,829	$ 122,054	$ 31,285	$ 885,304	$ 114,480
2019	16	108.62	$ 48,880	$ 69,537	$ 4,829	$ 123,246	$ 28,850	$ 914,154	$ 114,480
2020	17	111.34	$ 50,102	$ 69,537	$ 4,829	$ 124,468	$ 26,608	$ 940,763	$ 114,480
2021	18	114.12	$ 51,355	$ 69,537	$ 4,829	$ 125,720	$ 24,544	$ 965,307	$ 114,480
2022	19	116.97	$ 52,638	$ 69,537	$ 4,829	$ 127,004	$ 22,644	$ 987,951	$ 114,480
2023	20	119.90	$ 53,954	$ 69,537	$ 4,829	$ 128,320	$ 20,894	$ 1,008,845	$ 114,480
2024	21	-	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total			**$ 862,132**	**$ 1,390,738**	**$ 96,579**	**$ 2,349,449**	**$ 1,008,845**		

Results	PV ($000)	Annuity ($000)	Annuity/MW ($000/MW)	
Proposal A	$ 794,899	$ 126,601	$ 253.20 /MW	(Winner)
Proposal B	$ 1,008,845	$ 114,480	$ 254.40 /MW	

EXHIBIT TWO
COMPARISON OF A 10-YEAR PROPOSAL (PROPOSAL A) TO A 5-YEAR PROPOSAL (PROPOSAL B) USING THE REAL LEVELIZED REVENUE REQUIREMENT APPROACH

Assumptions

Discount Rate	10.00%	Inflation	2.00%	Proposal A	750 MW
Real Rate	7.84%			Proposal B	650 MW

PROPOSAL A

Year	Total Bid Price Costs ($000) (At 10%)	Real Annuity ($000) (At 7.84%)	Inflation Escalation	Inflation Adjusted Real Annuity ($000) (At 10%)	Capacity (MW)	Real Annuity MW (At 7.84%)	Inflation Adj. Real Annuity MW (At 10%)	Infl. Adj.Real Annuity /Infl. Adj. Real MW ($000/MW)
1	$ 95,000	$ 66,055	102%	$ 67,376	750	682	696	96.86
2	$ 89,000	$ 66,055	104%	$ 68,723	750	682	709	96.86
3	$ 83,000	$ 66,055	106%	$ 70,098	750	682	724	96.86
4	$ 77,000	$ 66,055	108%	$ 71,500	750	682	738	96.86
5	$ 71,000	$ 66,055	110%	$ 72,930	750	682	753	96.86
6	$ 65,000	$ 66,055	113%	$ 74,388	750	682	768	96.86
7	$ 59,000	$ 66,055	115%	$ 75,876	750	682	783	96.86
8	$ 53,000	$ 66,055	117%	$ 77,394	750	682	799	96.86
9	$ 47,000	$ 66,055	120%	$ 78,942	750	682	815	96.86
10	$ 41,000	$ 66,055	122%	$ 80,520	750	682	831	96.86
PV	$ 446,386	$ 446,386		$ 446,386	4,608	4,608	4,608	96.86

PROPOSAL A - TRUNCATED AT 5 YEARS

Year	Total Bid Price Costs ($000) (At 10%)	Real Annuity (At 7.84%)	Inflation Escalation	Inflation Adjusted Real Annuity ($000) (At 10%)	Capacity (MW)	Real Annuity MW (At 7.84%)	Inflation Adj, Real Annuity MW (At 10%)	Infl. Adj.Real Annuity /Infl. Adj. Real MW ($000/MW)
1	$ 95,000	$ 66,055	102%	$ 67,376	750	682	696	96.86
2	$ 89,000	$ 66,055	104%	$ 68,723	750	682	709	96.86
3	$ 83,000	$ 66,055	106%	$ 70,098	750	682	724	96.86
4	$ 77,000	$ 66,055	108%	$ 71,500	750	682	738	96.86
5	$ 71,000	$ 66,055	110%	$ 72,930	750	682	753	96.86
6	$ 65,000	$ 66,055	113%					
7	$ 59,000	$ 66,055	115%					
8	$ 53,000	$ 66,055	117%					
9	$ 47,000	$ 66,055	120%					
10	$ 41,000	$ 66,055	122%					
PV	$ 446,386	$ 446,386		$ 264,831			2,734	96.86

EXHIBIT TWO
COMPARISON OF A 10-YEAR PROPOSAL (PROPOSAL A) TO A
5-YEAR PROPOSAL (PROPOSAL B)
USING THE REAL LEVELIZED REVENUE REQUIREMENT APPROACH

PROPOSAL B

Year	Total Bid Price Costs ($000) (At 10%)	Real Annuity ($000) (At 7.84%)	Inflation Escalation	Inflation Adjusted Real Annuity ($000) (At 10%)	Capacity (MW)	Real Annuity MW (At 7.84%)	Inflation Adj. Real Annuity MW (At 10%)	Infl. Adj.Real Annuity /Infl. Adj. Real MW
1	$ 85,200	$ 66,865	102%	$ 68,202	650	615	627	108.80
2	$ 77,200	$ 66,865	104%	$ 69,567	650	615	639	108.80
3	$ 69,200	$ 66,865	106%	$ 70,958	650	615	652	108.80
4	$ 61,200	$ 66,865	108%	$ 72,377	650	615	665	108.80
5	$ 53,200	$ 66,865	110%	$ 73,825	650	615	679	108.80
6								
7								
8								
9								
10								
PV	$ 268,081	$ 268,081		$ 268,081	2,464	2,464	2,464	108.80

Results ($000/MW):

Proposal A	$ 96.86 /MW	(Winner)
Proposal B	$ 108.80 /MW	

EXHIBIT THREE
HOW A 5-YEAR PROPOSAL IS EXTENDED TO A
10-YEAR PROPOSAL USING THE FILLER METHOD

5-YEAR PROPOSAL

Assumptions

Capacity	500 MW	After-tax CC	9.5%	Fixed O&M	$ 4.50 /kW-yr
Capacity Factor	70%	Inflation	2.5%	Variable O&M	$ 1.50 /MWh
Term Length	5 yrs	Capacity Payment	$ 96.00 /kW-yr	Fuel Costs	$ 5.00 /MMBtu
Heat Rate	6,500 Btu/kWh				

Year	Proposal Year	Capacity Payment ($/ kW-yr)	Capacity Costs ($000)	Energy Costs ($000)	Fixed O&M Costs ($000)	Var O&M Costs ($000)	Total Costs ($000)	PV of Total Cost ($000)
2003		-	-	-	-	-	-	-
2004	1	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 141,090
2005	2	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 128,850
2006	3	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 117,671
2007	4	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 107,462
2008	5	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 98,139
2009	6	-	$ -	$ -	$ -	$ -	$ -	$ -
2010	7	-	$ -	$ -	$ -	$ -	$ -	$ -
2011	8	-	$ -	$ -	$ -	$ -	$ -	$ -
2012	9	-	$ -	$ -	$ -	$ -	$ -	$ -
2013	10	-	$ -	$ -	$ -	$ -	$ -	$ -
2014	11	-	$ -	$ -	$ -	$ -	$ -	$ -
2015	12	-	$ -	$ -	$ -	$ -	$ -	$ -
			$ 240,000	**$ 498,225**	**$ 11,250**	**$ 22,995**	**$ 772,470**	**$ 593,212**

5-YEAR PROPOSAL FILLED IN TO BE A 10-YEAR PROPOSAL

Assumptions

Capacity	500 MW	After-tax CC	9.5%	Fixed O&M	$ 4.50 /kW-yr
Capacity Factor	70%	Inflation	2.5%	Variable O&M	$ 1.50 /MWh
Term Length	10 yrs	Capacity Payment	$ 96.00 /kW-yr	Fuel Costs	$ 5.00 /MMBtu
Heat Rate	6,500 Btu/kWh				

Year	Proposal Year	Capacity Payment ($/ kW-yr)	Capacity Costs ($000)	Energy Costs ($000)	Fixed O&M Costs ($000)	Var O&M Costs ($000)	Total Costs ($000)	PV of Total Cost ($000)
2003		-	-	-	-	-	-	-
2004	1	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 141,090
2005	2	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 128,850
2006	3	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 117,671
2007	4	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 107,462
2008	5	96.00	$ 48,000	$ 99,645	$ 2,250	$ 4,599	$ 154,494	$ 98,139
2009	6	108.62	$ 54,308	$ 99,645	$ 2,546	$ 4,599	$ 161,097	$ 93,455
2010	7	111.33	$ 55,665	$ 99,645	$ 2,546	$ 4,599	$ 162,455	$ 86,066
2011	8	114.11	$ 57,057	$ 99,645	$ 2,546	$ 4,599	$ 163,847	$ 79,273
2012	9	116.97	$ 58,483	$ 99,645	$ 2,546	$ 4,599	$ 165,273	$ 73,026
2013	10	119.89	$ 59,945	$ 99,645	$ 2,546	$ 4,599	$ 166,735	$ 67,280
2014	11	-	$ -	$ -	$ -	$ -	$ -	$ -
2015	12	-	$ -	$ -	$ -	$ -	$ -	$ -
2016	13	-	$ -	$ -	$ -	$ -	$ -	$ -
2017	14	-	$ -	$ -	$ -	$ -	$ -	$ -
2018	15	-	$ -	$ -	$ -	$ -	$ -	$ -
			$ 525,459	**$ 996,450**	**$ 23,978**	**$ 45,990**	**$ 1,591,877**	**$ 992,312**

Results:	Present Value
5-Year Proposal	$ 593,212 /MW
Filled In 10-Year Proposal	$ 992,312 /MW